

## WHAT IS CLAIMED IS:

1. An apparatus for checking a hypertext, targeting a hypertext database, capable of detecting a part including a logically mismatched link in said hypertext database.

2. The apparatus for checking a hypertext as set forth in claim 1 is operated to detect at least one of the following parts as said part, said parts including:

a part having a mismatch between a link source description  
5 and contents of a link target page, said link target page being linked with said link source description;

a part having a mismatch between a link source description and contents of a link target page, the contents of said link target page being changed, said link target page being linked with said  
10 link source description;

a part having a disunity among a plurality of link source descriptions having a same link target page;

a part having a disunity in styles among a plurality of link source descriptions included in a same page or peripheral pages;

15 a part having no link source description; and

a part including a group of links forming a loop, the link source descriptions of said links relating to a same topic.

3. An apparatus for checking a hypertext comprising: 2

an information storing unit which stores an information about links related to said hypertext; and

a condition detecting unit which refers to said information  
5 storing unit to detect a part including a logically mismatched link.

4. The apparatus for checking a hypertext as set forth in claim 3, further comprising an information collecting unit which collects said information about the links related to said hypertext, wherein said information storing unit stores said  
5 information about the links collected by said information collecting unit.

5. The apparatus for checking a hypertext as set forth in claim 3, further comprising a candidate providing unit which provides a correction candidate related to said part including the logically mismatched link detected by said condition detecting  
5 unit.

6. The apparatus for checking a hypertext as set forth in claim 5, further comprising an importance calculating unit which calculates importance value of said part including the logically mismatched link detected by said condition detecting unit.

7. The apparatus for checking a hypertext as set forth in claim 5, further comprising a correction reflecting unit which corrects said hypertext based on said part including the logically mismatched link detected by said condition detecting unit and said  
5 correction candidate provided by said correction providing unit.

8. The apparatus for checking a hypertext as set forth in claim 6, further comprising a total score calculating unit which calculates a total score related to said hypertext based on at least one of factors including: the importance value calculated  
5 by said importance calculating unit, the number of said parts detected by said condition detecting unit, and the rate of the number of said part detected by said condition detecting unit

corresponding to the total number of the links.

9. The apparatus for checking a hypertext as set forth in claim 3, further comprising an importance calculating unit which calculates the importance value of the part including the logically mismatched link detected by said condition detecting unit.

10. The apparatus for checking a hypertext as set forth in claim 9 further comprising a total score calculating unit which calculates a total score related to said hypertext based on at least one of factors including: the importance value calculated by said importance calculating unit, the number of said parts detected by said condition detecting unit, and the rate of the number of said part detected by said condition detecting unit corresponding to the total number of the links.

11. The apparatus for checking a hypertext as set forth in claim 3, wherein said condition detecting unit is operated to divide said information about the links into some groups in accordance with a predetermined condition and detects a minor group as said part including the logically mismatched link.

12. The apparatus for checking a hypertext as set forth in claim 3, wherein said condition detecting unit is operated to detect a part including a link of which a link source description and contents of a link target page are mismatched as said part including the logically mismatched link.

13. The apparatus for checking a hypertext as set forth in claim 3, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following

scores and detects a link with a high criteria scores as said part,

5 said scores including:

(1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target page with each other;

(2) a second score calculated by comparing link target pages  
10 of a plurality of links having a same link source description with each other;

(3) a third score calculated by comparing link target pages of a plurality of links having a same link target page and a same link source description with each other; and

15 (4) a fourth score calculated by comparing contents of a link source description and contents of a link target page, said link source description being linked with said link target page.

14. The apparatus for checking a hypertext as set forth in claim 3, wherein said condition detecting unit is operated to detect a part having a mismatch between a link source description and contents of a link target page, said link source description being  
5 linked with said link target page, and said mismatch being caused by changing the contents of said link target page.

15. The apparatus for checking a hypertext as set forth in claim 3, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following scores and to detect a link with a high criteria scores as said  
5 part, said scores including:

(1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target

page with each other ;

(2) a second score calculated by detecting a notice description  
10 including a movement notice description or an expiration notice  
description included in the contents of a link target page; and

(3) a third score calculated by detecting a description of  
period of validity included in the contents of a link target page  
and comparing said period of validity and present date and time.

16. The apparatus for checking a hypertext as set forth in claim  
3, wherein said condition detecting unit is operated to detect  
a part having a disunity among a plurality of link source  
descriptions having a same link target page.

17. The apparatus for checking a hypertext as set forth in claim  
3, wherein said condition detecting unit is operated to detect  
a part having a disunity in styles among a plurality of link source  
descriptions included in a same page or peripheral pages.

18. The apparatus for checking a hypertext as set forth in claim  
5, wherein said condition detecting unit is operated to divide  
said information about the links into some groups including a  
major group and a minor group in accordance with a predetermined  
5 condition and detects said minor group as said part including the  
logically mismatched link.

19. The apparatus for checking a hypertext as set forth in claim  
18, wherein said candidate providing unit is operated to provide  
a correction candidate that makes said minor group same as said  
main group.

20. The apparatus for checking a hypertext as set forth in claim  
5, wherein said condition detecting unit is operated to detect

a part including a link of which a link source description and contents of a link target page are mismatched as said part  
5 including the logically mismatched link.

21. The apparatus for checking a hypertext as set forth in claim 5, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following scores and detects a link with a high criteria scores as said part,  
5 said scores including:

- (1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target page with each other;
- (2) a second score calculated by comparing link target pages  
10 of a plurality of links having a same link source description with each other;
- (3) a third score calculated by comparing link target pages of a plurality of links having a same link target page and a same link source description with each other; and
- 15 (4) a fourth score calculated by comparing contents of a link source description and contents of a link target page, said link source description being linked with said link target page.

22. The apparatus for checking a hypertext as set forth in claim 21, wherein said candidate providing unit is operated to provide at least one of the following correction candidates including:  
(1) a first correction candidate for the link source  
5 description obtained by comparing the link source descriptions of a plurality of links having a same link target page with each other;

(2) a second correction for the link target candidate obtained by comparing target pages of a plurality of links having a same link source description with each other;

(3) a correction candidate for the link target obtained by comparing link target pages of a plurality of links having a same link target page and a same link source description with each other; and

(4) a correction candidate for the link source description obtained by comparing contents of a link source description and contents of a link target page, said link source description being linked with said link target page.

23. The apparatus for checking a hypertext as set forth in claim 5, wherein said condition detecting unit is operated to detect a part having a mismatch between a link source description and contents of a link target page, said link source description being linked with said link target page, and said mismatch being caused by changing the contents of said link target page.

24. The apparatus for checking a hypertext as set forth in claim 5, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following scores and detects a link with a high criteria scores as said part, said scores including:

(1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target page with each other ;

(2) a second score calculated by detecting a notice description including a movement notice description or an expiration notice

description included in the contents of the link target page; and

(3) a third score calculated by detecting a description of period of validity included in the contents of a link target page and comparing said period of validity and present date and time.

25. The apparatus for checking a hypertext as set forth in claim 24, wherein said candidate providing unit is operated to provide at least one of the following correction candidates including:

(1) a first correction candidate for the link source description obtained by comparing link source descriptions of a plurality of links having a same link target page with each other; and

(2) a second correction candidate for the link target obtained by extracting the description of new moved address from the contents of a link target page.

26. The apparatus for checking a hypertext as set forth in claim 5, wherein said condition detecting unit is operated to detect a part having a disunity among a plurality of link source descriptions having a same link target page, and

5 said candidate providing unit provides a correction candidate for the link source description by comparing link source descriptions of a plurality of links having a same link target page as that of said part detected by said condition detecting unit.

27. The apparatus for checking a hypertext as set forth in claim 5,

wherein said condition detecting unit is operated to detect a part having a disunity in styles among a plurality of link source



5 descriptions included in a same page or peripheral pages, and  
said candidate providing unit is operated to provide said  
correction candidate for the style of the link source description  
by comparing the style of a plurality of link source descriptions  
included in the detected part detected by said condition detecting  
10 unit.

28. The apparatus for checking a hypertext as set forth in claim  
4, wherein said information collecting unit is operated to  
repeatedly collect said information about the links in the  
hypertext, and said information storing unit stores a plurality  
5 of said information about the links collected at a plurality of  
different times.

29. The apparatus for checking a hypertext as set forth in claim  
28, wherein said condition detecting unit is operated to detect  
a part having a mismatch between a link source description and  
contents of a link target page by referring to said information  
5 storing unit and calculating changes of the numbers of the links  
or kinds of the link source description to the link target page  
during said times, the contents of said link target page being  
changed.

30. The apparatus for checking a hypertext as set forth in claim  
3, wherein said condition detecting unit is operated to detect  
a link having no link source description as said part including  
the logically mismatched link.

31. The apparatus for checking a hypertext as set forth in claim  
3, wherein said condition detecting unit is operated to detect  
a link having the link source description in which no character

strings or images are included, or a link having the link source  
5 description in which a character string or an image expressed in  
an inconspicuous color or a size is included, as said part  
including the logically mismatched link.

32. The apparatus for checking a hypertext as set forth in claim  
3, wherein said condition detecting unit is operated to detect  
a group of links forming a loop as said part, the link source  
descriptions of said links relating to a same topic.

33. The apparatus for checking a hypertext as set forth in claim  
6, wherein said importance calculating unit is operated to  
calculate importance value based on at least one of the following  
factors including:

- 5 (1) a sort of errors or unsuitability of the detected part  
detected by said condition detecting unit;
- (2) accuracy of errors or unsuitability of said detected part;
- (3) the number of links which is connected to the page including  
said detected part;
- 10 (4) a record of frequency of access to the page including said  
detected part; and
- (5) a stratification level in the hypertext of the page  
including said detected part.

34. The apparatus for checking a hypertext as set forth in claim  
6, wherein said importance calculating unit is operated to  
calculate the importance value of the detected part detected by  
said condition detecting unit, and to control output condition  
5 for said detected part in accordance with said importance value,  
said output condition including the number of outputting said

detected part or a method of outputting said detected part.

35. The apparatus for checking a hypertext as set forth in claim 4, wherein said information collecting unit is operated to extract character strings corresponding to the link source description by character recognition when the link source description is an image, and to register said extracted character strings as said information about links on said information storing unit.

36. The apparatus for checking a hypertext as set forth in claim 1, having a hypertext on a Web site to be checked target.

37. The apparatus for checking a hypertext as set forth in claim 3, having a hypertext on a Web site to be checked target.

38. A method of checking a hypertext comprising the steps of:  
(a) accepting a condition for detecting a part from a hypertext database, said part including a part having an error or a mismatch in a link source description or a relationship between links;  
5 (b) detecting said part based on said condition;  
(c) displaying, on a display screen, a result of the detection as a list with three items including:

(1) a link source description;  
(2) identification information about a link source page; and (3)  
10 identification information about a link target page.

39. The method of checking a hypertext as set forth in claim 38, wherein said list is sorted by having one of said three items as a key in said step (c).

40. The method of checking a hypertext as set forth in claim 38 further comprising the steps of:

(d) accepting a correction candidate for said three items; and

(e) correcting said hyper text database in accordance with said  
 5 correction candidate accepted in said step (d).

41. The method of checking a hypertext as set forth in claim  
 38, further comprising the step of specifying a hypertext database  
 to be checked.

42. A method of checking a hypertext comprising the steps of:

- (a) collecting information about links in a Web site;
- (b) detecting a part including a logically mismatched link by  
 referring to said information collected in said step (a);
- 5 (c) calculating importance value of said part detected in said  
 step (b);
- (d) calculating a total score related to said Web site;
- (e) performing periodically said steps (a) to (d) for said Web  
 site; and
- 10 (f) notifying of a change of said total score related to said  
 Web site in accordance with time.

43. A method of checking a hypertext comprising the steps of:

- (a) collecting information about links in a Web site;
- (b) detecting a part including a logically mismatched link by  
 referring to said information collected in said step (a);
- 5 (c) calculating importance value of said part detected in said  
 step (b);
- (d) calculating a total score related to said Web site;
- (e) performing periodically said steps (a) to (d) for said Web  
 site; and
- 10 (f) notifying an alarm when said total score related to said  
 Web site or said importance value of said part fulfills a

predetermined condition

44. A method of checking a hypertext comprising the steps of:
- (a) collecting information about links in a Web site;
  - (b) detecting a part including a logically mismatched link by referring to said information collected in said step (a);
  - 5 (c) calculating importance value of said part detected in said step (b);
  - (d) calculating a total score related to said Web site;
  - (e) performing said steps (a) to (d) for a plurality of Web sites specified as targets; and
  - 10 (f) outputting said total scores of said plurality of Web sites as a ranking list.

45. A computer program product comprising a computer usable storage medium having computer readable code embodied therein, said computer readable code being executed by a computer including an information storing unit which stores an information about

5 links related to a hypertext, said computer readable code including a cord for having said computer serve as a condition detecting unit which refers to said information storing unit to detect a part including a logically mismatched link.

46. A computer program product comprising a computer usable storage medium having computer readable code embodied therein, said computer readable code being executed by a computer having an information storing unit, said computer readable code

5 including a cord for having said computer serve as:

an information collecting unit which collects an information about links related to a hypertext and stores said

information on said information storing unit; and

10 a condition detecting unit which refers to said information storing unit to detect a part including a logically mismatched link.

47. The computer program product as set forth in claim 46, wherein said computer readable code includes a cord for having said computer serve as a candidate providing unit which provides a correction candidate related to said part including the  
5 logically mismatched link detected by said condition detecting unit.

48. The computer program product as set forth in claim 47, wherein said computer readable code includes a cord for having said computer serve as an importance calculating unit which calculates importance value of said part including the logically  
5 mismatched link detected by said condition detecting unit.

49. The computer program product as set forth in claim 47, wherein said computer readable code includes a cord for having said computer serve as a correction reflecting unit which corrects said hypertext based on said part including the logically  
5 mismatched link detected by said condition detecting unit and said correction candidate provided by said correction providing unit.

50. The computer program product as set forth in claim 48, wherein said computer readable code includes a cord for having said computer serve as a total score calculating unit which calculates a total score related to said hypertext based on at  
5 least one of factors, said factors including the importance value calculated by said importance calculating unit, the number of said

parts detected by said condition detecting unit, and the rate of the number of said part detected by said condition detecting unit corresponding to the total number of the links.

51. The computer program product as set forth in claim 45, wherein said computer readable code includes a cord for having said computer serve as an importance calculating unit which calculates the importance value of the part including the  
5 logically mismatched link detected by said condition detecting unit.

52. The computer program product as set forth in claim 51, wherein said computer readable code includes a cord for having said computer serve as a total score calculating unit which calculates a total score related to said hypertext based on at  
5 least one of factors, said factors including the importance value calculated by said importance calculating unit, the number of said parts detected by said condition detecting unit, and the rate of the number of said part detected by said condition detecting unit corresponding to the total number of the links.

53. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to divide said information about the links into some groups in accordance with a predetermined condition and detects a minor group as said part  
5 including the logically mismatched link.

54. The computer program product as set forth in claim 45, said condition detecting unit is operated to detect a part including a link of which a link source description and contents of the link target page are mismatched as said part including the logically

5 mismatched link.

55. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following scores and detects a link with a high criteria scores as said part, 5 said scores including:

- (1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target page with each other;
- (2) a second score calculated by comparing link target pages 10 of a plurality of links having a same link source description with each other;
- (3) a third score calculated by comparing link target pages of a plurality of links having a same link target page and a same link source description with each other; and
- 15 (4) a fourth score calculated by comparing contents of a link source description and contents of a link target page, said link source description being linked with said link target page.

56. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to detect a part having a mismatch between a link source description and contents of the link target page, said link source description being linked 5 with said link target page, and said mismatch being caused by changing the contents of said link target page.

57. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following



scores and to detect a link with a high criteria scores as said  
5 part, said scores including:

- (1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target page with each other ;
- (2) a second score calculated by detecting a notice description  
10 including a movement notice description or an expiration notice description included in the contents of a link target page; and
- (3) a third score calculated by detecting a description of period of validity included in the contents of a link target page and comparing said period of validity and present date and time.

58. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to detect a part having a disunity among a plurality of link source descriptions having a same link target page.

59. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to detect a part having a disunity in styles among a plurality of link source descriptions included in a same page or peripheral pages.

60. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to divide said information about the links into some groups including a major group and a minor group in accordance with a predetermined  
5 condition and detects said minor group as said part including the logically mismatched link.

61. The computer program product as set forth in claim 60, wherein said candidate providing unit is operated to provide a

correction candidate that makes said minor group same as said main group.

62. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to detect a part including a link of which a link source description and contents of a link target page are mismatched as said part including the  
5 logically mismatched link.

63. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following scores and detects a link with a high criteria scores as said part,  
5 said scores including:

- (1) a first score calculated by comparing the link source descriptions of a plurality of links having a same link target page with each other;
- (2) a second score calculated by comparing the target pages of  
10 a plurality of links having a same link source description with each other;
- (3) a third score calculated by comparing the link target pages of a plurality of links having a same link target page and a same link source description with each other; and
- 15 (4) a fourth score calculated by comparing contents of a link source description and contents of a link target page, said link source description being linked with said link target page.

64. The computer program product as set forth in claim 63, wherein said candidate providing unit is operated to provide at least one of the following correction candidates, said correction

candidates including:

- 5 (1) a first correction candidate for the link source description obtained by comparing the link source descriptions of a plurality of links having a same link target page with each other;
- (2) a second correction for the link target candidate obtained  
10 by comparing target pages of a plurality of links having a same link source description with each other;
- (3) a correction candidate for the link target obtained by comparing link target pages of a plurality of links having a same link target page and a same link source description with each  
15 other; and
- (4) a correction candidate for the link source description obtained by comparing contents of a link source description and contents of a link target page, said link source description being linked with said link target page.

65. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to detect a part having a mismatch between a link source description and contents of a link target page, said link source description being linked  
5 with said link target page, and said mismatch being caused by changing the contents of said link target page.

66. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to calculate criteria scores of the links based on at least one of the following scores and detects a link with a high criteria scores as said part,  
5 said scores including:

(1) a first score calculated by comparing link source descriptions of a plurality of links having a same link target page with each other ;

(2) a second score calculated by detecting a notice description including a movement notice description or an expiration notice description included in the contents of a link target page; and  
10 (3) a third score calculated by detecting a description of period of validity included in the contents of a link target page and comparing said period of validity and present date and time.

67. The computer program product as set forth in claim 66, wherein said candidate providing unit is operated to provide at least one of the following correction candidates, said correction candidates including:

5 (1) a first correction candidate for the link source description obtained by comparing link source descriptions of a plurality of links having a same link target page with each other; and

(2) a second correction candidate for the link target obtained  
10 by extracting the description of new moved address from the contents of a link target page.

68. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to detect a part having a disunity among a plurality of link source descriptions having a same link target page, and

5 said candidate providing unit provides a correction candidate for the link source description by comparing link source descriptions of a plurality of links having a same link target

page as that of said part detected by said condition detecting unit.

69. The computer program product as set forth in claim 47, wherein said condition detecting unit is operated to detect a part having a disunity in styles among a plurality of link source descriptions included in a same page or peripheral pages, and

5       said candidate providing unit is operated to provide said correction candidate for the style of the link source description by comparing the style of a plurality of link source descriptions included in the detected part detected by said condition detecting unit.

70. The computer program product as set forth in any one of claim 46, wherein said information collecting unit is operated to repeatedly collect said information about the links in the hypertext, and said information storing unit stores a plurality  
5 of said information about the links collected at a plurality of different times.

71. The computer program product as set forth in claim 70, wherein said condition detecting unit is operated to detect a part having a mismatch between a link source description and contents of a link target page by referring to said information storing  
5 unit and calculating changes of the numbers of the links or kinds of the link source description to the link target page during said times, the contents of said link target page being changed.

72. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to detect a link having no link source description as said part including the

logically mismatched link.

73. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to detect a link having the link source description in which no character strings or images are included, or a link having the link source  
5 description in which a character string or an image expressed in an inconspicuous color or a size is included, as said part including the logically mismatched link.

74. The computer program product as set forth in claim 45, wherein said condition detecting unit is operated to detect a group of links forming a loop as said part, the link source descriptions of said links relating to a same topic.

75. The computer program product as set forth in claim 48, wherein said importance calculating unit is operated to calculate importance value based on at least one of the following factors including:

- 5 (1) a sort of errors or unsuitability of the detected part detected by said condition detecting unit;
- (2) accuracy of errors or unsuitability of said detected part;
- (3) the number of links which is connected to the page including said detected part;
- 10 (4) a record of frequency of access to the page including said detected part; and
- (5) a stratification level in the hypertext of the page including said detected part.

76. The computer program product as set forth in claim 48, wherein said importance calculating unit is operated to calculate

the importance value of the detected part detected by said condition detecting unit, and to control output condition for said  
5 detected part in accordance with said importance value, said output condition including the number of outputting said detected part or a method of outputting said detected part.

77. The computer program product as set forth in claim 46, wherein said information collecting unit is operated to extract character strings corresponding to the link source description by character recognition when the link source description is an  
5 image, and to resister said extracted character strings as said information about links on said information storing unit.

78. The computer program product as set forth in claim 45, having a hypertext on a Web site to be checked target.

79. The computer program product as set forth in claim 46, having a hypertext on a Web site to be checked target.